

0034

State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER QUALITY

Michael O. Leavitt
Governor
Dianne R. Nielson, Ph.D.
Executive Director
Don A. Ostler, P.E.
Director

288 North 1460 West
P.O. Box 144870
Salt Lake City, Utah 84114-4870
(801) 538-6146
(801) 538-6016 Fax
(801) 536-4414 T.D.D.
www.deq.state.ut.us Web

Water Quality Board
K.C. Shaw, P.E.
Chairman

William R. Williams
Vice Chairman

Robert G. Adams
Nan Bunker

Ray M. Child, C.P.A.

John R. Cushing, Mayor

Dianne R. Nielson, Ph.D.

Ronald C. Sims, Ph.D.

Douglas E. Thompson, Mayor

J. Ann Wechsler

Don A. Ostler, P.E.
Executive Secretary

July 22, 2002

CERTIFIED MAIL (Return Receipt Requested)

Dennis Oakley
Environmental Engineer
P.O. Box 310
Huntington, UT 84528

Dear Mr. Oakley:

Subject: UPDES Permit UT0022896, Pacificorp-Cottonwood/Wilberg Mine

Enclosed is a draft copy of the UPDES Permit No. UT0022896, the Statement of Basis, and the Public Notice for your facility.

If you have any questions with regards to this matter, please contact James Hawkes at (801) 538-9449.

Sincerely,



Gayle J. Smith, P.E., Environmental Engineer
Permits & Compliance Section

GJS:JH:ev

Enclosure

cc: Linda Himmelbauer, EPA Region VIII (W/encl)
Claron Bjork, District Engineer
Dave Ariotti, Southeastern Utah District Health Dept
Wayne Hedberg, Division of Oil, Gas and Mining, DNR (W/encl)

FILE:

Incoming
8/15/019
Copy UPDES book
(Copy letter to Jim Smith)

RECEIVED
JUL 23 2002
DIVISION OF
OIL, GAS AND MINING



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July 22, 2002

Emery County Progress
190 East Main
Castle Dale, UT 84513

ATTN: Legal Advertising Department

This letter will confirm authorization to publish the attached NOTICE in the Emery County Progress in the first available edition. Please mail the invoice and affidavit of publication to:

Department of Environmental Quality
Division of Water Quality
Attn: Stacy Carroll
P.O. 144870
Salt Lake City, Utah 84114-4870

If there are any questions, please contact Edith Van Vleet at (801) 538-7015. Thank you for your assistance.

Sincerely,

Gayle J. Smith, P.E., Manager
Permits & Compliance Section

GJS:JH:ev

P:\WQ\CLERICAL\STHOMPSON\PNFORMS\NEWSPN.LTR

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Executive Secretary

July 27, 2002

DIVISION OF WATER QUALITY UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC NOTICE OF RENEWAL OF UPDES PERMIT

PURPOSE OF PUBLIC NOTICE

THE PURPOSE OF THIS PUBLIC NOTICE IS TO DECLARE THE STATE OF UTAH'S INTENTION TO ISSUE A UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMIT UNDER AUTHORITY OF THE UTAH WATER POLLUTION CONTROL ACT, SECTION 19-5-104 AND 107, UTAH CODE ANNOTATED 1953, AS AMENDED. SAID "PERMIT" REFERS TO UPDES PERMIT AND THE STATEMENT OF BASIS. (INCLUDING THE TOTAL MAXIMUM DAILY LOADS (TMDL'S), IF APPLICABLE, AS PER SECTION 303 (d) OF THE FEDERAL CLEAN WATER ACT (CWA).

PERMIT INFORMATION

PERMITTEE NAME:

Pacificorp- Cottonwood Wilberg Mine

MAILING ADDRESS:

P.O. Box 310, Huntington, UT 84528

TELEPHONE NUMBER:

(435) 687-4825

FACILITY LOCATION:

8 Miles Northwest of Orangeville, UT

UPDES PERMIT NO.:

UT0022896

BACKGROUND

Currently, Pacificorp has suspended operations at the Cottonwood/Wilberg Mine and has sealed the mine portals. Located approximately 8 miles northwest of Orangeville in Emery County, Utah, the mine is under reclamation.

PUBLIC COMMENTS

Public comments are invited any time prior to August 30, 2002. Comments may be directed to the Department of Environmental Quality, Division of Water Quality, 288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870. All comments received prior to August 30, 2002 will be considered in the formulation of final determinations to be imposed in the renewal permit. A public hearing will be held if response to this Notice indicates significant public interest. A public hearing may be held if written requests are received within the first 15 days of this public comment period that demonstrate significant public interest and substantive issues exist to warrant holding a hearing.

FURTHER INFORMATION

Additional information may be obtained upon request by calling (801) 538-6146 or by writing the aforementioned address. All information appropriate to this permit renewal is available for review at the Division of Water Quality, 288 North 1460 West, Salt Lake City, Utah.

**STATEMENT OF BASIS
PACIFICORP-COTTONWOOD/WILBERG MINE
UPDES PERMIT NUMBER: UT0022896
RENEWAL PERMIT
MINOR INDUSTRIAL**

DRAFT

FACILITY CONTACTS

Dennis Oakley	Carl Pollastro
Environmental Engineer	Manager of Tech. Services
P.O. Box 310	P.O. Box 310
Huntington, Utah 84528	Huntington, UT 84528
(435) 687-4825	(435) 687-4701

DESCRIPTION OF FACILITY

This facility was an underground coal mine which extracted approximately 2 million tons per year. Currently, Pacificorp has suspended operations at the Cottonwood/Wilberg Mine and has sealed the mine portals. Located approximately 8 miles northwest of Orangeville in Emery County, Utah, the mine is under reclamation. It has Standard Industrial Classification (SIC) code 1222, for Bituminous Coal Underground Mining.

DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Discharge of mine water at latitude 39°19'5", and longitude 111°11'19", continuous, enters Cottonwood Canyon Creek but never makes it to Cottonwood Creek.
002	Eliminated due to reclamation.
003	Discharge of storm water at latitude 39°19'07", and longitude 111°07'13", rarely discharges, would discharge to Grimes Wash.
004	Discharge of mine water at latitude 39°18'43", and longitude 111°10'35", minor seepage, never makes it to Cottonwood Canyon Creek.
005	Discharge of storm water at latitude 39°17'43", and longitude 111°07'18", rarely discharges, would discharge to Grimes Wash.

The wastewater for outfall 001 discharges into Cottonwood Canyon Creek where it all eventually percolates into the ground. Outfall 004 is located in Miller Canyon and consists of small amounts of mine water seepage which never makes it to waters of the State. Outfalls 003 and 005 have settling ponds for treatment of storm water surface discharge and discharge only on very large storm events. The last three years of monitoring data have been analyzed and only two minor violations have occurred (Total Iron 9/30/98 Outfall 001 and TSS 1/31/00 Outfall 003). Quarterly chronic short-

term whole effluent toxicity testing at Outfall 001 revealed no toxicity for six tests (Taken between 9/30/01 and 3/31/02).

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Whole effluent toxicity testing was instigated when the permit was modified, effective July 25, 2001. This has been eliminated because test results show no reasonable potential for toxicity (no failed tests). Storm water sedimentation basin outfall 002 has been reclaimed, therefore, outfall 002 has been eliminated.

Storm water monitoring requirements have been added in Part I.E.5.a. The permittee must monitor their storm water discharges associated with industrial activity at least quarterly (4 times per year) during years 2 and 4 of the permit cycle. The permittee shall submit monitoring results for each outfall on *Storm Water Discharge Monitoring Report (SWDMR)* forms. The following tables lists the storm water monitoring requirements.

Monitoring Requirements for Coal Mining Facilities	
Pollutants of Concern	Cut-Off Concentration
Total Recoverable Aluminum	0.75 mg/L
Total Recoverable Iron	1.0 mg/L
Total Suspended Solids	100 mg/L

RECEIVING WATERS AND STREAM CLASSIFICATION

Outfalls 003 and 005 flow into Grimes Wash, thence to Cottonwood Creek. Outfall 001 flows into Cottonwood Canyon Creek and Outfall 004 would flow into Cottonwood Canyon Creek but it seeps into the ground. Grimes Wash is classified 2B, 3C and 4. Cottonwood Creek is classified 1C, 2B, 3A, and 4 according to *Utah Administrative Code (UAC) R317-2-12.7*:

Class 1C – protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.

Class 2B – protected for secondary contact recreation such as boating, wading, or similar uses.

Class 3A – protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

Class 3C – protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

Class 4 – protected for agricultural uses including irrigation of crops and stockwatering.

BASIS FOR EFFLUENT LIMITATIONS

Applicable technology based standards for Coal Mining-Alkaline Mine Drainage are found in 40

CFR 434.40. These regulations specify a 1 day maximum total suspended solids (TSS) of 70 mg/L. TSS monthly average of 25 mg/L and weekly average of 35 mg/L limits are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The pH is required by the State regulations to be maintained between 6.5 and 9.0 S.U. Coliform and biochemical oxygen demand limits are not included since the permit prohibits the discharge of sanitary wastewater.

The total iron limitation is 1.8 mg/L because of the Total Maximum Daily Load Wasteload Analysis (Wasteload Analysis Page 9).

Total dissolved solids limit of 1 ton per day is based on the Colorado Salinity Control Forum Guidelines.

Oil and grease 10 mg/L limit and no visible sheen are based on the Best Professional Judgement (BPJ). This limit has been included in previous discharge permits for this and other coal mines.

Surface runoff of storm events less than or equal to the 10-year, 24-hour precipitation is limited to a settleable solids of 0.5 ml/L.

Based on effluent monitoring data and the existing treatment facility, the permittee is expected to be able to comply with the limitations.

Effluent Limitation in mg/L

<u>Parameter</u>	<u>30-Day Avg.</u>	<u>7-Day Avg.</u>	<u>Daily Min.</u>	<u>Daily Max.</u>
TSS, mg/L	25	35	N.A.	70
Total Iron, mg/L	N.A.	N.A.	N.A.	1.8
Oil & Grease, mg/L	N.A.	N.A.	N.A.	10
pH, S.U.	N.A.	N.A.	6.5	9.0
TDS, (sum tot.)lbs/day	N.A.	N.A.	N.A.	2000

SELF-MONITORING AND REPORTING REQUIREMENTS

The permittee is required to monitor and report total flow, TSS, oil & grease, total iron, TDS and pH each month. This reporting requirement will be submitted on Discharge Monitoring Report (DMR) forms. Reports are due 28 days after the end of the reporting period.

Self-Monitoring and Reporting Requirements for Influent

<u>Parameter</u>	<u>Frequency</u>	<u>Sample Type</u>	<u>Units</u>
Total Flow	Monthly	Measured	MGD
TSS	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
Oil & Grease	When sheen observed	Grab	mg/L

pH
TDS

Monthly
Monthly

Grab
Grab

S.U.
mg/L

STORMWATER REQUIREMENTS

This permit will include provisions of the Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity as per the permittees request. Requirements for the pollution prevention plan were taken from the Coal Mining sector.

PRETREATMENT REQUIREMENTS

This mine does not discharge process wastewater to any public sanitary sewer system. Any process wastewater that the facility may discharge to the sanitary sewer, either as direct discharge or as a hauled waste, is subject to federal, state and local pretreatment regulations. Pursuant to section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR section 403, the State Pretreatment Requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring)*. Authority to require effluent biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317-2-7.2*.

Since the permittee has ceased active coal extraction, passed all biomonitoring tests, and a reasonable potential for toxicity does not exist, biomonitoring will not be required. In the event of any unforeseen toxicity occurring at the facility the permit does contain a toxicity limitation-reopener provision.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by James W. Hawkes
Environmental Engineer
Utah Division of Water Quality
Drafted July 8, 2002

Wasteload Analysis - Total Maximum Daily Load (TMDL)
Addendum: Statement of Basis

7/3/2002
9:00 AM

Facilities: Cottonwood/Wilberg Mine
Discharging to: Cottonwood Creek [Joe's Valley Res.]

UPDES No: UT- 0022896-001

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Cottonwood Creek [Joe's Valley Res.]	1C, 2B, 3A, 4
Antidegradation Segment Classification	N/A

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)		Function of Temperature and pH	
Summer	Chronic	1.30	mg/l as N (4 Day Average)
	Acute	5.70	mg/l as N (1 Hour Average)
Fall/Spring	Chronic	1.32	mg/l as N (4 Day Average)
	Acute	5.77	mg/l as N (1 Hour Average)
Winter	Chronic	1.35	mg/l as N (4 Day Average)
	Acute	5.93	mg/l as N (1 Hour Average)
Chronic Total Residual Chlorine (TRC)		0.019 mg/l (4 Day Average)	
		0.011 mg/l (1 Hour Average)	
Chronic Dissolved Oxygen (DO)		6.50 mg/l (30 Day Average)	
		5.00 mg/l (7 Day Average)	
		4.00 mg/l (1 Day Average)	
Maximum Total Dissolved Solids		1200 mg/l	
		723 mg/l [Salinity Forum - Parker Dam]	
Maximum Boron		750 mg/l	

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*

Aluminum	87.00 ug/l**	0.313 lbs/day	750.00	ug/l	2.702 lbs/day
Arsenic	190.00 ug/l	0.684 lbs/day	360.00	ug/l	1.297 lbs/day
Cadmium	2.69 ug/l	0.010 lbs/day	13.54	ug/l	0.049 lbs/day
Chromium III	508.97 ug/l	1.833 lbs/day	4270.10	ug/l	15.382 lbs/day
ChromiumVI	11.00 ug/l	0.040 lbs/day	16.00	ug/l	0.058 lbs/day
Copper	30.23 ug/l	0.109 lbs/day	49.90	ug/l	0.180 lbs/day
Iron			1000.00	ug/l	3.602 lbs/day
Lead	12.88 ug/l	0.046 lbs/day	330.60	ug/l	1.191 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.009 lbs/day
Nickel	399.37 ug/l	1.439 lbs/day	3592.47	ug/l	12.941 lbs/day
Selenium	5.00 ug/l	0.018 lbs/day	20.00	ug/l	0.072 lbs/day
Silver	ug/l	lbs/day	26.86	ug/l	0.097 lbs/day
Zinc	268.87 ug/l	0.968 lbs/day	296.85	ug/l	1.069 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO₃

Metals Standards Based upon a Hardness of 300 mg/l as CaCO₃

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.005 lbs/day
Chlordane	0.0043 ug/l	0.027 lbs/day	1.200	ug/l	0.004 lbs/day
DDT, DDE	0.001 ug/l	0.006 lbs/day	0.550	ug/l	0.002 lbs/day
Dieldrin	0.0019 ug/l	0.012 lbs/day	1.250	ug/l	0.005 lbs/day
Endosulfan	0.056 ug/l	0.353 lbs/day	0.110	ug/l	0.000 lbs/day
Endrin	0.0023 ug/l	0.014 lbs/day	0.090	ug/l	0.000 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.0038 ug/l	0.024 lbs/day	0.260	ug/l	0.001 lbs/day
Lindane	0.08 ug/l	0.504 lbs/day	1.000	ug/l	0.004 lbs/day
Methoxychlor			0.030	ug/l	0.000 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.000 lbs/day
PCB's	0.014 ug/l	0.088 lbs/day	2.000	ug/l	0.007 lbs/day
Pentachlorophenol	13.00 ug/l	81.863 lbs/day	20.000	ug/l	0.072 lbs/day
Toxephene	0.0002 ug/l	0.001 lbs/day	0.730	ug/l	0.003 lbs/day

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
TDS			1200.0 mg/l	2.16 tons/day
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	1.35 lbs/day
Cadmium			10.0 ug/l	0.02 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*

Arsenic	50 ug/l	0.315 lbs/day
Barium	1000 ug/l	6.297 lbs/day
Cadmium	10 ug/l	0.063 lbs/day
Chromium	50 ug/l	0.315 lbs/day
Lead	50 ug/l	0.315 lbs/day
Mercury	2 ug/l	0.013 lbs/day
Selenium	10 ug/l	0.063 lbs/day
Silver	50 ug/l	0.315 lbs/day
Fluoride (3)	1.4 ug/l	0.009 lbs/day
to	2.4 ug/l	0.015 lbs/day
Nitrates as N	10 ug/l	0.063 lbs/day

Chlorophenoxy Herbicides

2,4-D	100 ug/l	0.630 lbs/day
2,4,5-TP	10 ug/l	0.063 lbs/day
Endrin	0.2 ug/l	0.001 lbs/day
γ-cyclohexane (Lindane)	4 ug/l	0.025 lbs/day
Methoxychlor	100 ug/l	0.630 lbs/day
Toxaphene	5 ug/l	0.031 lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Maximum Conc., ug/l - Acute Standards

Class 1C

[2 Liters/Day for 70 Kg Person over 70 Yr.]

Class 3A, 3B

[6.5 g for 70 Kg Person over 70 Yr.]

Toxic Organics	Class 1C	Class 1C	Class 3A, 3B	Class 3A, 3B
Acenaphthene	1200.00 ug/l	7.56 lbs/day	2700 ug/l	17.00 lbs/day
Acrolein	320.00 ug/l	2.02 lbs/day	780 ug/l	4.91 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.66 ug/l	0.00 lbs/day
Benzene	1.20 ug/l	0.01 lbs/day	71 ug/l	0.45 lbs/day
Benidine	0.00012 ug/l	0.00 lbs/day	0.00054 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.00 lbs/day	4.4 ug/l	0.03 lbs/day
Chlorobenzene	680.00 ug/l	4.28 lbs/day	21000 ug/l	132.24 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.00077 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.00 lbs/day	99 ug/l	0.62 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.01 lbs/day	8.9 ug/l	0.06 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	0.61 ug/l	0.00 lbs/day	42 ug/l	0.26 lbs/day
1,1,2,2-Tetrachloroethan	0.17 ug/l	0.00 lbs/day	11 ug/l	0.07 lbs/day
Chloroethane			ug/l	lbs/day
Bis(2-chloroethyl) ether	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.01 lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	ug/l	lbs/day
2-Chloronaphthalene	1700.00 ug/l	10.71 lbs/day	4300 ug/l	27.08 lbs/day
2,4,6-Trichlorophenol	2.10 ug/l	0.01 lbs/day	6.5 ug/l	0.04 lbs/day
p-Chloro-m-cresol			ug/l	lbs/day
Chloroform (HM)	5.70 ug/l	0.04 lbs/day	470 ug/l	2.96 lbs/day
2-Chlorophenol	120.00 ug/l	0.76 lbs/day	400 ug/l	2.52 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	17.00 lbs/day	17000 ug/l	107.05 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	2.52 lbs/day	2600 ug/l	16.37 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	2.52 lbs/day	2600 ug/l	16.37 lbs/day
3,3'-Dichlorobenzidine	0.04 ug/l	0.00 lbs/day	0.077 ug/l	0.00 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.02 lbs/day
1,2-trans-Dichloroethylr	700.00 ug/l	4.41 lbs/day	ug/l	lbs/day
2,4-Dichlorophenol	93.00 ug/l	0.59 lbs/day	790 ug/l	4.97 lbs/day

1,2-Dichloropropane	0.52 ug/l	0.00 lbs/day	39 ug/l	0.25 lbs/day
1,3-Dichloropropylene	10.00 ug/l	0.06 lbs/day	1700 ug/l	10.71 lbs/day
2,4-Dimethylphenol	540.00 ug/l	3.40 lbs/day	2300 ug/l	14.48 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.00 lbs/day	9.1 ug/l	0.06 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	ug/l	lbs/day
1,2-Diphenylhydrazine	0.04 ug/l	0.00 lbs/day	0.54 ug/l	0.00 lbs/day
Ethylbenzene	3100.00 ug/l	19.52 lbs/day	29000 ug/l	182.62 lbs/day
Fluoranthene	300.00 ug/l	1.89 lbs/day	370 ug/l	2.33 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) etl	1400.00 ug/l	8.82 lbs/day	170000 ug/l	1070.52 lbs/day
Bis(2-chloroethoxy) meth	ug/l	lbs/day	ug/l	lbs/day
Methylene chloride (HM)	4.70 ug/l	0.03 lbs/day	1600 ug/l	10.08 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	ug/l	lbs/day
Methyl bromide (HM)	ug/l	lbs/day	ug/l	lbs/day
Bromoform (HM)	4.30 ug/l	0.03 lbs/day	360 ug/l	2.27 lbs/day
Dichlorobromomethane(t	0.27 ug/l	0.00 lbs/day	22 ug/l	0.14 lbs/day
Chlorodibromomethane (0.41 ug/l	0.00 lbs/day	34 ug/l	0.21 lbs/day
Hexachlorobutadiene(c)	0.44 ug/l	0.00 lbs/day	50 ug/l	0.31 lbs/day
Hexachlorocyclopentadie	240.00 ug/l	1.51 lbs/day	17000 ug/l	107.05 lbs/day
Isophorone	8.40 ug/l	0.05 lbs/day	600 ug/l	3.78 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	0.11 lbs/day	1900 ug/l	11.96 lbs/day
2-Nitrophenol	ug/l	lbs/day	ug/l	lbs/day
4-Nitrophenol	ug/l	lbs/day	ug/l	lbs/day
2,4-Dinitrophenol	70.00 ug/l	0.44 lbs/day	14000 ug/l	88.16 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.08 lbs/day	765 ug/l	4.82 lbs/day
N-Nitrosodimethylamine	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.05 lbs/day
N-Nitrosodiphenylamine	5.00 ug/l	0.03 lbs/day	16 ug/l	0.10 lbs/day
N-Nitrosodi-n-propylamir	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.01 lbs/day
Pentachlorophenol	0.28 ug/l	0.00 lbs/day	8.2 ug/l	0.05 lbs/day
Phenol	2.10E+04 ug/l	1.32E+02 lbs/day	4.6E+06 ug/l	2.90E+04 lbs/day
Bis(2-ethylhexyl)phthalat	1.80 ug/l	0.01 lbs/day	5.9 ug/l	0.04 lbs/day
Butyl benzyl phthalate	3000.00 ug/l	18.89 lbs/day	5200 ug/l	32.75 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	17.00 lbs/day	12000 ug/l	75.57 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	23000.00 ug/l	144.83 lbs/day	120000 ug/l	755.66 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	1.97E+03 lbs/day	2.9E+06 ug/l	1.83E+04 lbs/day
Benzo(a)anthracene (PA	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (P	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (P	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	60.45 lbs/day	ug/l	lbs/day
Dibenzo(a,h)anthracene	0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene (0.0028 ug/l	0.00 lbs/day	0.031 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	6.05 lbs/day	11000 ug/l	69.27 lbs/day
Tetrachloroethylene	0.80 ug/l	0.01 lbs/day	8.9 ug/l	0.06 lbs/day
Toluene	6800.00 ug/l	42.82 lbs/day	200000 ug/l	1259.43 lbs/day
Trichloroethylene	2.70 ug/l	0.02 lbs/day	81 ug/l	0.51 lbs/day
Vinyl chloride	2.00 ug/l	0.01 lbs/day	525 ug/l	3.31 lbs/day
				lbs/day
				lbs/day
Pesticides				
Aldrin	0.0001 ug/l	0.00 lbs/day	0.00014 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.00014 ug/l	0.00 lbs/day

Chlordane	0.0006 ug/l	0.00 lbs/day	0.00059 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.00059 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.00059 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.00084 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.01 lbs/day	2 ug/l	0.01 lbs/day
beta-Endosulfan	0.9300 ug/l	0.01 lbs/day	2 ug/l	0.01 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.01 lbs/day	2 ug/l	0.01 lbs/day
Endrin	0.7600 ug/l	0.00 lbs/day	0.81 ug/l	0.01 lbs/day
Endrin aldehyde	0.7600 ug/l	0.00 lbs/day	0.81 ug/l	0.01 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.00021 ug/l	0.00 lbs/day
Heptachlor epoxide				

PCB's

PCB 1242 (Arochlor 124)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 125)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 123)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101)	0.000044 ug/l	0.00 lbs/day	0.000045 ug/l	0.00 lbs/day

Pesticide

Toxaphene	0.000750 ug/l	0.00	ug/l	lbs/day
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Dioxin

Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00
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Metals

Antimony	14.0 ug/l	0.09 lbs/day		
Arsenic	50.0 ug/l	0.31 lbs/day	4300.00 ug/l	27.08 lbs/day
Asbestos	7.00E+06 ug/l	4.41E+04 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	8.19 lbs/day	2.2E+05 ug/l	1385.37 lbs/day
Lead	700.0 ug/l	4.41 lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	28.97 lbs/day
Selenium	0.1 ug/l	0.00 lbs/day		
Silver	610.0 ug/l	3.84 lbs/day		
Thallium			6.30 ug/l	0.04 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Upstream Information

	Stream Flow	Temp.	pH	T-NH3	BOD	DO	TRC	TDS
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l
Summer	0.5	17.0	8.0	0.10	0.50	6.50		300.0
Fall/Spring	0.5	12.0	8.0	0.10	0.50	---		300.0
Winter	0.5	4.0	8.0	0.10	0.50	---		300.0
Dissolved	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb

Metals	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*
	Hg	Ni	Se	Ag	Zn	Boron		
All Seasons	0.0001	0.53*	1.06*	0.1*	0.053*	10.0		* 1/4 MDL

Discharge Information

Season	Flow, MGD	Temp.
Summer	0.43200	12.0
Fall/Spring	0.43200	12.0
Winter	0.43200	12.0

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

All Seasons

Not to Exceed:	0.43 MGD	Daily Average
	0.67 cfs	Daily Average

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.432 MGD. If the discharger is allowed to have a flow greater than 0.432 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	57.2% Effluent	[Chronic]

Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD

limitation as follows:

All Seasons [Based upon Summer Conditions]
Concentration

30 Day Average	25.0 mg/l as BOD5	90.1 lbs/day
30 Day Average	20.0 mg/l as COD	72.0 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent D.O. limitation as follows:

All Seasons [Based upon Summer Conditions]
Concentration

30 Day Average	5.5 mg/l
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Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent limitation (expressed as Total Ammonia as N) as follows:

Season		Concentration		Load	
Summer	4 Day Average - Chronic	2.20	mg/l as N	7.9	lbs/day
	1 Hour Average - Acute	9.89	mg/l as N	35.6	lbs/day
Fall/Spring	4 Day Average - Chronic	2.22	mg/l as N	8.0	lbs/day
	1 Hour Average - Acute	10.02	mg/l as N	36.1	lbs/day
Winter	4 Day Average - Chronic	2.29	mg/l as N	8.2	lbs/day
	1 Hour Average - Acute	10.28	mg/l as N	37.0	lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.%.

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration		Load	
Summer	4 Day Average - Chronic	0.033	mg/l	0.1	lbs/day
	1 Hour Average - Acute	0.019	mg/l	0.1	lbs/day
Fall/Spring	4 Day Average - Chronic	0.033	mg/l	0.1	lbs/day
	1 Hour Average - Acute	0.019	mg/l	0.1	lbs/day
Winter	4 Day Average - Chronic	0.033	mg/l	0.1	lbs/day
	1 Hour Average - Acute	0.019	mg/l	0.1	lbs/day

**Effluent Limitations for Total Recoverable Metals based upon
Water Quality Standards**

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 300 mg/l):

	4 Day Average		1 Hour Average		
	Concentration	Load	Concentration		Load
Aluminum	N/A ug/l	N/A lbs/day	1,309.3	ug/l	4.7 lbs/day
Arsenic	331.56 ug/l	0.8 lbs/day	628.7	ug/l	2.3 lbs/day
Cadmium	4.64 ug/l	0.0 lbs/day	23.6	ug/l	0.1 lbs/day
Chromium III	889.17 ug/l	2.1 lbs/day	7,464.2	ug/l	26.9 lbs/day
Chromium VI	16.26 ug/l	0.0 lbs/day	25.0		0.1
Copper	52.25 ug/l	0.1 lbs/day	86.6	ug/l	0.3 lbs/day
Iron			1,747.2	ug/l	6.3 lbs/day
Lead	21.93 ug/l	0.1 lbs/day	577.3	ug/l	2.1 lbs/day
Mercury	0.02 ug/l	0.0 lbs/day	4.2	ug/l	0.0 lbs/day
Nickel	697.57 ug/l	1.6 lbs/day	6,279.6	ug/l	22.6 lbs/day
Selenium	7.55 ug/l	0.0 lbs/day	33.8	ug/l	0.1 lbs/day
Silver	N/A ug/l	N/A lbs/day	46.9	ug/l	0.2 lbs/day
Zinc	469.96 ug/l	1.1 lbs/day	518.9	ug/l	1.9 lbs/day
Cyanide	9.09 mg/l	0.0 lbs/day	7.0	ug/l	0.0 lbs/day
TDS, mg/l	Utah Class 4 @ 1200 mg/l Standard		1,873.3	mg/l	3.4 tons/day
	Salinity Form @ 723 mg/l Standard		1,039.5	mg/l	1.9 tons/day
	Salinity Forum @ 1 ton/day Standard		555.2	mg/l	@ 1.0 ton/day

Note: Salinity Forum "standards" apply only in the Colorado Basin.

**Effluent Limitations for Organics [Pesticides]
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Organics [Pesticides]
will be met with an effluent limit as follows:

	4 Day Average		1 Hour Average		
	Concentration	Load	Concentration		Load
Aldrin			1.5E+00	ug/l	8.36E-03 lbs/day
Chlordane	4.30E-03 ug/l	1.55E-02 lbs/day	1.2E+00	ug/l	6.69E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	3.60E-03 lbs/day	5.5E-01	ug/l	3.06E-03 lbs/day
Dieldrin	1.90E-03 ug/l	6.84E-03 lbs/day	1.3E+00	ug/l	6.97E-03 lbs/day
Endosulfan	5.60E-02 ug/l	2.02E-01 lbs/day	1.1E-01	ug/l	6.13E-04 lbs/day
Endrin	2.30E-03 ug/l	8.28E-03 lbs/day	9.0E-02	ug/l	5.02E-04 lbs/day
Guthion			1.0E-02	ug/l	5.57E-05 lbs/day
Heptachlor	3.80E-03 ug/l	1.37E-02 lbs/day	2.6E-01	ug/l	1.45E-03 lbs/day
Lindane	8.00E-02 ug/l	2.88E-01 lbs/day	1.0E+00	ug/l	5.57E-03 lbs/day
Methoxychlor			3.0E-02	ug/l	1.67E-04 lbs/day
Mirex			1.0E-02	ug/l	5.57E-05 lbs/day
Parathion			4.0E-02	ug/l	2.23E-04 lbs/day
PCB's	1.40E-02 ug/l	5.04E-02 lbs/day	2.0E+00	ug/l	1.11E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	4.68E+01 lbs/day	2.0E+01	ug/l	1.11E-01 lbs/day

Toxephene 2.00E-04 ug/l

7.20E-04 lbs/day

7.3E-01

ug/l

4.07E-03 lbs/day

Effluent Targets for Pollution Indicators Based upon Water Quality Standards

In-stream criteria of downstream segments for Pollution Indicators
will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	18.0 lbs/day
Nitrates as N	4.0 mg/l	14.4 lbs/day
Total Phosphorus as P	0.05 mg/l	0.2 lbs/day
Total Suspended Solids	90.0 mg/l	324.2 tons/day

Note: Pollution indicator targets are for information purposes only.

Effluent Limitations for Protection of Human Health [Toxics Rule] Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)

In-stream criteria of downstream segments for Protection of Human Health [Toxics]
will be met with an effluent limit as follows:

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	2.10E+03 ug/l	7.56E+00 lbs/day
Acrolein	5.59E+02 ug/l	2.02E+00 lbs/day
Acrylonitrile	1.03E-01 ug/l	3.72E-04 lbs/day
Benzene	2.10E+00 ug/l	7.56E-03 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	4.37E-01 ug/l	1.57E-03 lbs/day
Chlorobenzene	1.19E+03 ug/l	4.28E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.31E-03 ug/l	4.72E-06 lbs/day
1,2-Dichloroethane	6.64E-01 ug/l	2.39E-03 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	3.32E+00 ug/l	1.20E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	1.07E+00 ug/l	3.84E-03 lbs/day
1,1,2,2-Tetrachloroethane	2.97E-01 ug/l	1.07E-03 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	5.42E-02 ug/l	1.95E-04 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	2.97E+03 ug/l	1.07E+01 lbs/day
2,4,6-Trichlorophenol	3.67E+00 ug/l	1.32E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	9.96E+00 ug/l	3.59E-02 lbs/day
2-Chlorophenol	2.10E+02 ug/l	7.56E-01 lbs/day
1,2-Dichlorobenzene	4.72E+03 ug/l	1.70E+01 lbs/day
1,3-Dichlorobenzene	6.99E+02 ug/l	2.52E+00 lbs/day
1,4-Dichlorobenzene	6.99E+02 ug/l	2.52E+00 lbs/day
3,3'-Dichlorobenzidine	6.99E-02 ug/l	2.52E-04 lbs/day

1,1-Dichloroethylene	9.96E-02 ug/l	3.59E-04 lbs/day
1,2-trans-Dichloroethylene		
2,4-Dichlorophenol	1.63E+02 ug/l	5.86E-01 lbs/day
1,2-Dichloropropane	9.09E-01 ug/l	3.27E-03 lbs/day
1,3-Dichloropropylene	1.75E+01 ug/l	6.30E-02 lbs/day
2,4-Dimethylphenol	9.44E+02 ug/l	3.40E+00 lbs/day
2,4-Dinitrotoluene	1.92E-01 ug/l	6.93E-04 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	6.99E-02 ug/l	2.52E-04 lbs/day
Ethylbenzene	5.42E+03 ug/l	1.95E+01 lbs/day
Fluoranthene	5.24E+02 ug/l	1.89E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	2.45E+03 ug/l	8.82E+00 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	8.22E+00 ug/l	2.96E-02 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	7.52E+00 ug/l	2.71E-02 lbs/day
Dichlorobromomethane(HM)	4.72E-01 ug/l	1.70E-03 lbs/day
Chlorodibromomethane (HM)	7.17E-01 ug/l	2.58E-03 lbs/day
Hexachlorocyclopentadiene	4.20E+02 ug/l	1.51E+00 lbs/day
Isophorone	1.47E+01 ug/l	5.29E-02 lbs/day
Naphthalene		
Nitrobenzene	2.97E+01 ug/l	1.07E-01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	1.22E+02 ug/l	4.41E-01 lbs/day
4,6-Dinitro-o-cresol	2.27E+01 ug/l	8.19E-02 lbs/day
N-Nitrosodimethylamine	1.21E-03 ug/l	4.35E-06 lbs/day
N-Nitrosodiphenylamine	8.74E+00 ug/l	3.15E-02 lbs/day
N-Nitrosodi-n-propylamine	8.74E-03 ug/l	3.15E-05 lbs/day
Pentachlorophenol	4.89E-01 ug/l	1.76E-03 lbs/day
Phenol	3.67E+04 ug/l	1.32E+02 lbs/day
Bis(2-ethylhexyl)phthalate	3.15E+00 ug/l	1.13E-02 lbs/day
Butyl benzyl phthalate	5.24E+03 ug/l	1.89E+01 lbs/day
Di-n-butyl phthalate	4.72E+03 ug/l	1.70E+01 lbs/day
Di-n-octyl phthalate		
Diethyl phthalate	4.02E+04 ug/l	1.45E+02 lbs/day
Dimethyl phthalate	5.47E+05 ug/l	1.97E+03 lbs/day
Benzo(a)anthracene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Benzo(a)pyrene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Benzo(b)fluoranthene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Benzo(k)fluoranthene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Chrysene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	4.89E-03 ug/l	1.76E-05 lbs/day
Pyrene (PAH)	1.68E+03 ug/l	6.05E+00 lbs/day
Tetrachloroethylene	1.40E+00 ug/l	5.04E-03 lbs/day
Toluene	1.19E+04 ug/l	4.28E+01 lbs/day
Trichloroethylene	4.72E+00 ug/l	1.70E-02 lbs/day
Vinyl chloride	3.50E+00 ug/l	1.26E-02 lbs/day

Pesticides

Aldrin	2.27E-04 ug/l	8.19E-07 lbs/day
Dieldrin	2.45E-04 ug/l	8.82E-07 lbs/day
Chlordane	9.96E-04 ug/l	3.59E-06 lbs/day
4,4'-DDT	1.03E-03 ug/l	3.72E-06 lbs/day
4,4'-DDE	1.03E-03 ug/l	3.72E-06 lbs/day
4,4'-DDD	1.45E-03 ug/l	5.23E-06 lbs/day
alpha-Endosulfan	1.63E+00 ug/l	5.86E-03 lbs/day
beta-Endosulfan	1.63E+00 ug/l	5.86E-03 lbs/day
Endosulfan sulfate	1.63E+00 ug/l	5.86E-03 lbs/day
Endrin	1.33E+00 ug/l	4.79E-03 lbs/day
Endrin aldehyde	1.33E+00 ug/l	4.79E-03 lbs/day
Heptachlor	3.67E-04 ug/l	1.32E-06 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1254 (Arochlor 1254)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1221 (Arochlor 1221)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1232 (Arochlor 1232)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1248 (Arochlor 1248)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1260 (Arochlor 1260)	7.69E-05 ug/l	2.77E-07 lbs/day
PCB-1016 (Arochlor 1016)	7.69E-05 ug/l	2.77E-07 lbs/day

Pesticide

Toxaphene	1.28E-03 ug/l	4.60E-06 lbs/day
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Metals

Antimony	24.47 ug/l	0.09 lbs/day
Arsenic	86.81 ug/l	0.31 lbs/day
Asbestos	1.22E+07 ug/l	4.41E+04 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	2272.61 ug/l	8.19 lbs/day
Cyanide	1223.71 ug/l	4.41 lbs/day
Lead		
Mercury	0.24 ug/l	0.00 lbs/day
Nickel	1066.38 ug/l	3.84 lbs/day
Selenium		
Silver		
Thallium	2.97 ug/l	0.01 lbs/day
Zinc		

Dioxin

Dioxin (2,3,7,8-TCDD)	2.27E-08 ug/l	8.19E-11 lbs/day
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Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		1309.3				1309.3	
Antimony			24.5	7517.1		24.5	
Arsenic	174.8	628.7	86.8			86.8	331.6
Asbestos			1.22E+07			1.22E+07	
Barium					1748.2	1748.2	
Beryllium							
Cadmium	17.4	23.6				17.4	4.6
Chromium (III)		7464.2				7464.2	889.2
Chromium (VI)	174.2	25.0				25.00	16.26
Copper	349.0	86.6	2272.6			86.6	52.3
Cyanide			384595.8			1223.7	
Iron		1747.2				1747.2	
Lead	174.2	577.3				174.2	21.9
Mercury		4.20	0.2	0.26		0.24	0.021
Nickel		6279.6	1066.4	8041.5		1066.4	697.6
Selenium	86.2	33.8				33.8	7.6
Silver		46.9				46.9	
Thallium			3.0	11.0		3.0	
Zinc		518.9				518.9	470.0
Boron	1311.1					1311.1	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	1309.3		
Antimony	24.47		
Arsenic	86.8	331.6	Acute Controls
Asbestos	1.22E+07		
Barium			
Beryllium			
Cadmium	17.4	4.6	
Chromium (III)	7464.2	889	
Chromium (VI)	25.0	16.3	
Copper	86.6	52.3	
Cyanide	1223.7		
Iron	1747.2		
Lead	174.2	21.9	
Mercury	0.245	0.021	
Nickel	1066.4	698	
Selenium	33.8	7.6	
Silver	46.9		
Thallium	3.0		
Zinc	518.9	470.0	
Boron	1311.12		

Other Effluent Limitations are based upon R317-1.

The permit writers may utilize other information to tighten or make more stringent these limits based upon best available technology and other considerations.

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

Category III waters fall under special rules for the determination of effluent limits. These rules allow more stringent effluent limitations based upon additional factors, including: "Blue-ribbon" fisheries, special recreational areas, and drinking water sources.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless shown that this is not attainable. Refer to the Forum's Guidelines for additional information.

The permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information.

Prepared by:
William O. Moellmer, Ph.D.
Utah Division of Water Quality
801-538-6329

Cottonwood-Wilberg 2001

**Utah Division of Water Quality
Salt Lake City, Utah**

ADDENDUM

Statement of Basis (Wasteload Analysis & TMDL)

Date: July 8, 2002

**Facilities: Cottonwood/Wilberg Mine
[UT-0022896-003, UT-0022896-004 and
UT-0022896-005]**

**Receiving water: Grimes Wash, Tributary to Cottonwood Creek
(St. Joe's Reservoir)**

Finding of No Significant Impact (FONSI)

The discharge from the above listed facility was evaluated for impact to its receiving water.

It has been determined that this discharge will not cause a violation of water quality standards (Utah Water Quality Standards, R317-2 Utah Administrative Code) in downstream receiving waters. Therefore, a wasteland allocation based upon water quality numeric criteria is not required.

Other permit limits should be set according to rules found in R-317-1.

**Prepared by:
William O. Moellmer, Ph.D.
Utah Division of Water Quality**